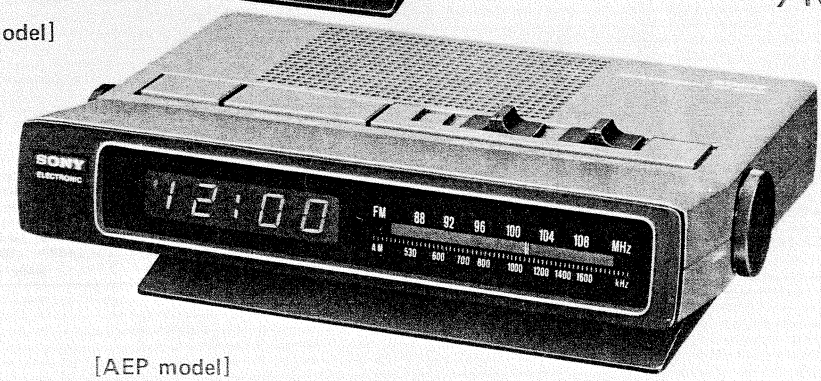
ICF-C800W

US Model
Canadian Model
AEP Model
UK Model
E Model
AUS Model

[US, Canadian, UK, E, AUS model]



[AEP model]

FM/AM DIGITAL CLOCK RADIO

SPECIFICATIONS

Power Requirements:	120 V ac, 60 Hz (US, Canadian model) 110, 127, 220 or 240 V ac adjustable, 50 Hz (AEP model) 110, 127, 220 or 240 V ac adjustable, 50 Hz or 60 Hz adjustable (E model) 240 V ac, 50 Hz (UK, AUS model)
Power Consumption:	5W ac (2.5W ac when only the clock is in operation) (US, Canadian model) 5W ac (3W ac when only the clock is in operation) (AEP, E, UK, AUS model)
Antennas:	FM: Lead antenna, external antenna terminals AM: Ferrite-rod antenna
Frequency Ranges:	FM: 87.5–108 MHz (3.43–2.78 m) AM: 530–1,605 kHz (566–187 m)
Speaker:	9.2 cm (3 3/4 inches) dia.
Dimensions:	Approx. 250 (w) × 70 (h) × 180 (d) mm 9 7/8 (w) × 2 7/8 (h) × 7 1/8 (d) inches (including projecting parts and controls)
Weight:	1,100 g, 2 lb 7 oz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

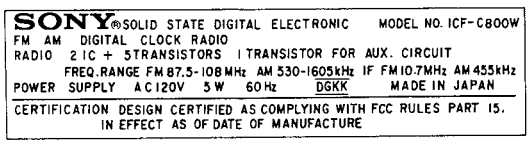
SONY®

SERVICE MANUAL

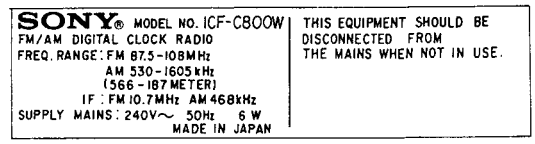
MODEL IDENTIFICATION

– Specification Label –

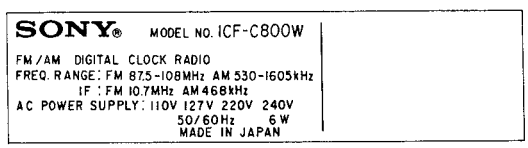
US, Canadian model


SONY® SOLID STATE DIGITAL ELECTRONIC MODEL NO. ICF-C800W
FM AM DIGITAL CLOCK RADIO
RADIO 2 IC + 5 TRANSISTORS 1 TRANSISTOR FOR AUX. CIRCUIT
FREQ. RANGE FM 87.5-108 MHz AM 530-1605 kHz IF FM 10.7 MHz AM 455 kHz
POWER SUPPLY AC 120V 5 W 60 Hz DGKK MADE IN JAPAN
CERTIFICATION DESIGN CERTIFIED AS COMPLYING WITH FCC RULES PART 15.
IN EFFECT AS OF DATE OF MANUFACTURE

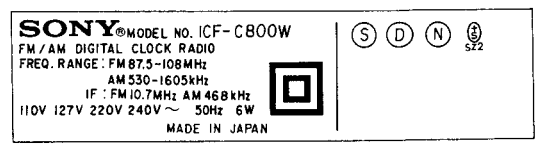
UK, AUS model


SONY® MODEL NO. ICF-C800W
FM/AM DIGITAL CLOCK RADIO
FREQ. RANGE: FM 87.5-108 MHz
AM 530-1605 kHz
(566-187 METER)
IF : FM 10.7 MHz AM 468 kHz
SUPPLY MAINS : 240V~ 50Hz 6 W
MADE IN JAPAN
THIS EQUIPMENT SHOULD BE
DISCONNECTED FROM
THE MAINS WHEN NOT IN USE.

E model


SONY® MODEL NO. ICF-C800W
FM/AM DIGITAL CLOCK RADIO
FREQ. RANGE: FM 87.5-108 MHz AM 530-1605 kHz
IF : FM 10.7 MHz AM 468 kHz
AC POWER SUPPLY: 110V 127V 220V 240V
50/60 Hz 6 W
MADE IN JAPAN

AEP model

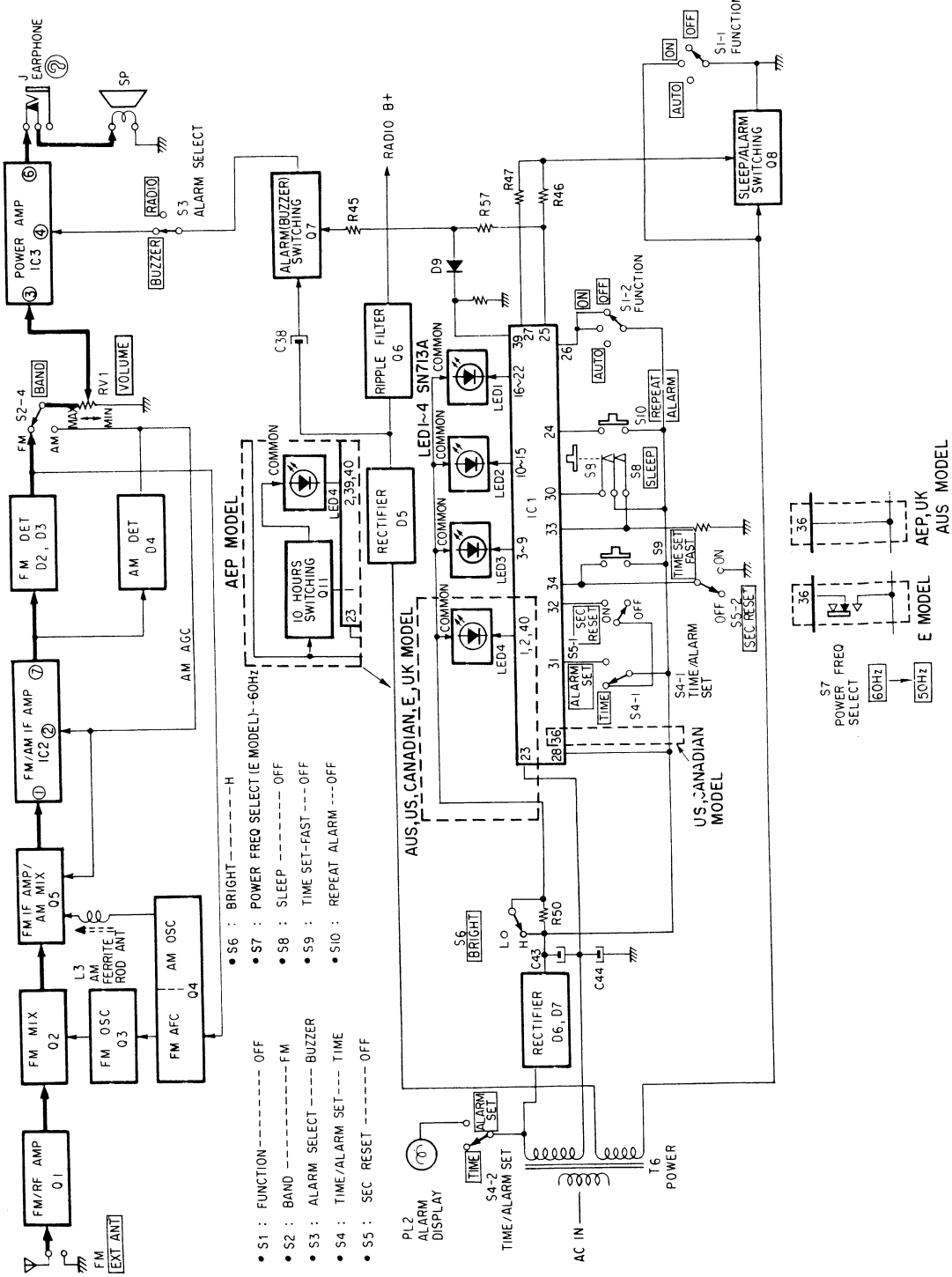

SONY® MODEL NO. ICF-C800W
FM/AM DIGITAL CLOCK RADIO
FREQ. RANGE: FM 87.5-108 MHz
AM 530-1605 kHz
IF : FM 10.7 MHz AM 468 kHz
110V 127V 220V 240V~ 50Hz 6W
MADE IN JAPAN
S D N
SJ2

CAUTION FOR REPAIRING

1. Handle with care for MOS IC. (IC1: MM5387)
   - Do not touch the terminal of MOS IC with the static-charged materials or fingers.
   - Put on cotton gloves. (Do not use nylon gloves.)
   - Put a grounded aluminum board on the workbench.
   - Connect the soldering iron to ground.
   - When packing the MOS IC, put it in a original package or an aluminum foil so that all the terminals of IC have the same potential.
2. When installing the time indicator cover, use the new one.
3. Do not bend the flexible board extremely.
4. When checking the circuits with ohm-meter, be sure to unplug the ac power cord.

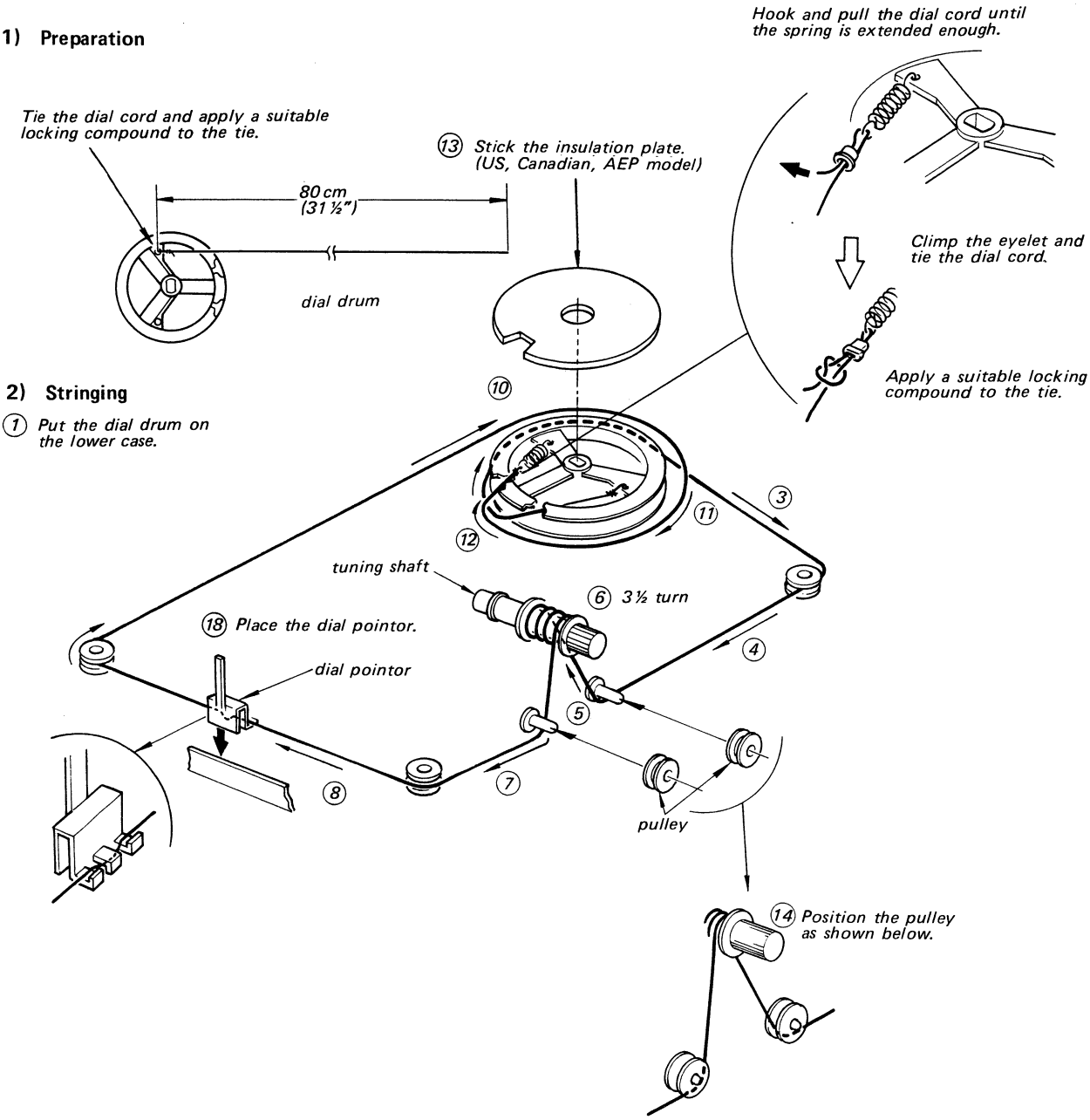
SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM



1-2. DIAL CORD STRINGING

1) Preparation


Hook and pull the dial cord until the spring is extended enough.
Tie the dial cord and apply a suitable locking compound to the tie.
⑬ Stick the insulation plate. (US, Canadian, AEP model)
80 cm (31½")
dial drum
Climp the eyelet and tie the dial cord.
Apply a suitable locking compound to the tie.
⑩
⑪
⑫
③
tuning shaft
⑥ 3½ turn
⑱ Place the dial pointor.
dial pointor
④
⑤
⑦
⑧
pulley
⑭ Position the pulley as shown below.

2) Stringing

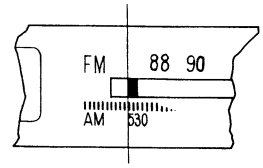
① Put the dial drum on the lower case.

3) Installation

① Turn the tuning capacitor shaft fully counterclockwise.
② Install the radio board on the lower case.
③ Fit the dial drum with the tuning capacitor shaft by pushing the dial drum from the bottom of the lower case.
④ Install the front panel.

4) Dial Pointer Calibration

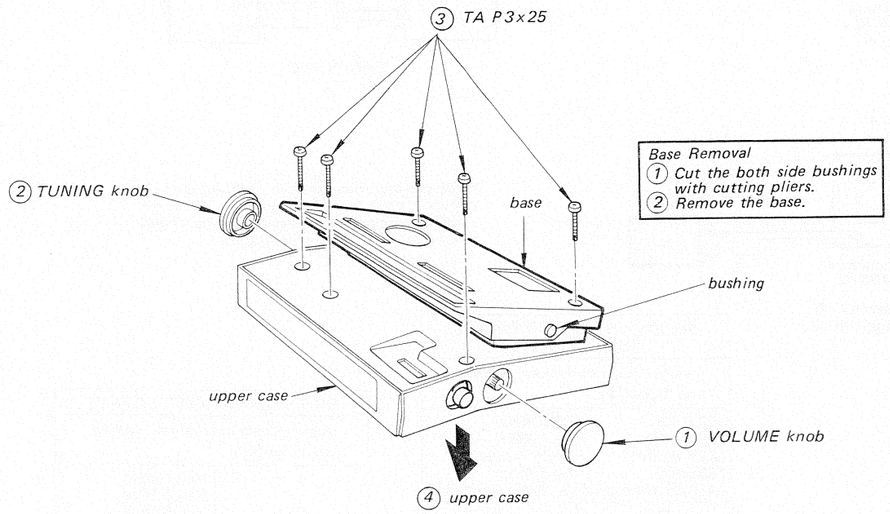
① Turn the tuning shaft fully counterclockwise.
② Position the dial pointer as shown right.
③ Secure the dial pointer with a suitable locking compound.



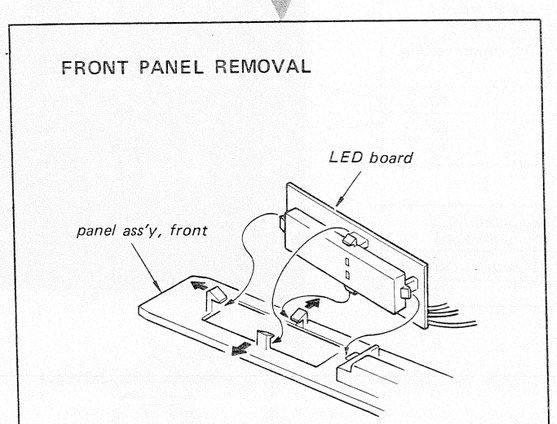
SECTION 2
DISASSEMBLY AND REPLACEMENT

2-1. REMOVAL

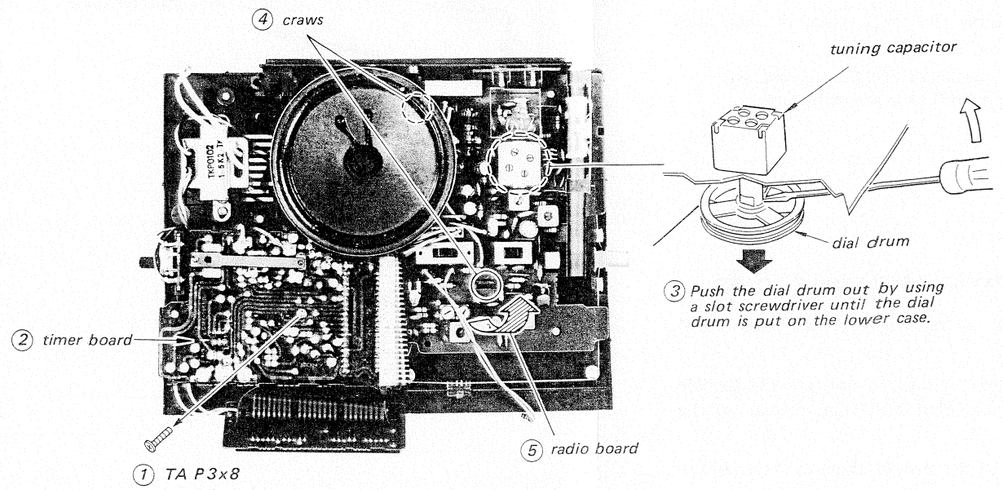
UPPER CASE REMOVAL



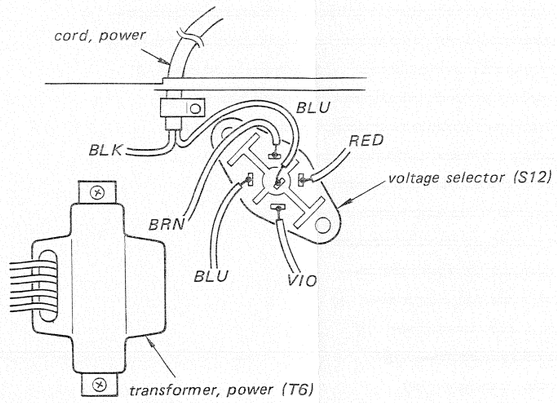
FRONT PANEL REMOVAL



TIMER- AND RADIO-BOARD REMOVAL


④ craws
tuning capacitor
dial drum
③ Push the dial drum out by using a slot screwdriver until the dial drum is put on the lower case.
② timer board
① TA P3x8
⑤ radio board

2-2. VOLTAGE SELECTOR (S12) WIRING DIAGRAM (AEP, E model)

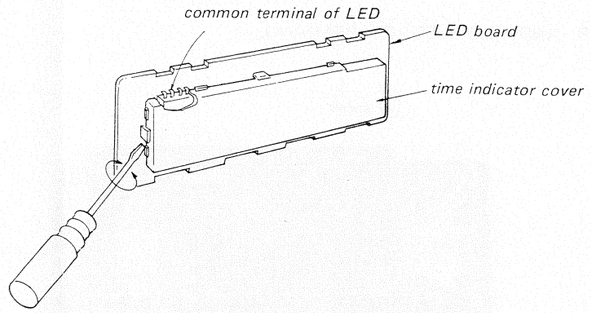


2-3. REPLACEMENT OF LED

Break and remove the time indicator cover by using a slot screwdriver because the time indicator cover adheres to the LED board.

After replacing the LED, place the new time indicator cover on the LED board.

Note: The two kinds of LED are used, but replace SN713A as the repair parts.

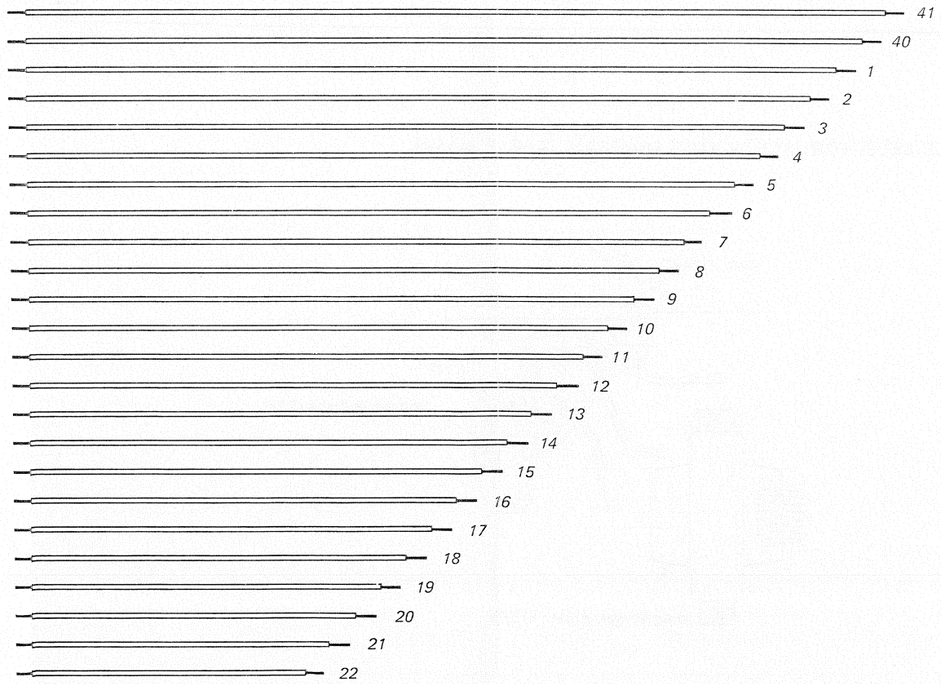


2-4. REPLACEMENT OF FLEXIBLE BOARD

The flexible board connects the timer board and LED board.

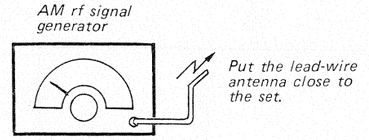
For replacing the LED board, cut the flexible board off and use thin lead wires instead of the flexible board.

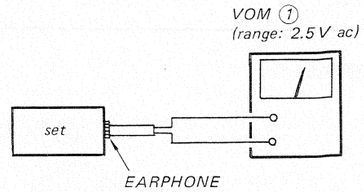
The length of the lead wires are as shown below (actual sise).

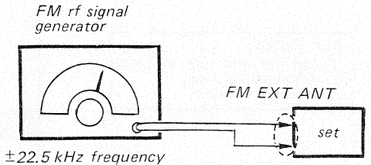


(The numbers refered to the mounting diagram.)

SECTION 3
ADJUSTMENTS






FM rf signal generator
FM EXT ANT
set
±22.5 kHz frequency deviation by 400 Hz signal
(modulation turned off for FM IF Alignment 2.)

- *Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.*

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
109.5 MHz 108.5 MHz (AEP model) 108 MHz (in West Germany)	86.5 MHz 87.1 MHz (AEP model) 87.5 MHz (in West Germany)
CT3	L4

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
CT1	109.5 MHz 108.5 MHz (AEP model) 108 MHz (in West Germany)
L2	86.5 MHz 87.1 MHz (AEP model) 87.5 MHz (in West Germany)

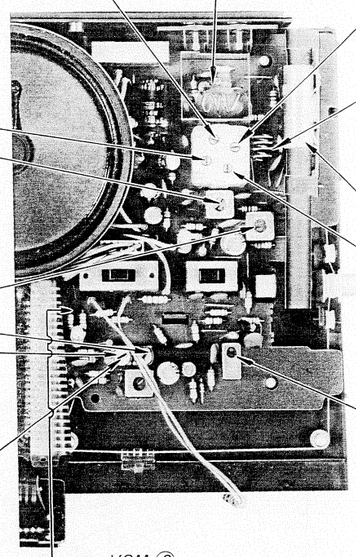
AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
1,680 kHz	CT4
520 kHz	L5

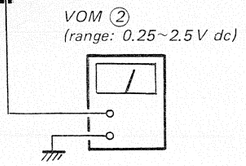
AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
L3	620 kHz
CT2	1,400 kHz

FM IF ALIGNMENT 1 (with modulation)	
Adjust for a maximum reading on VOM ①.	
10.7 MHz	T5
	T2
	T3

AM IF ALIGNMENT	
Adjust for a maximum reading on VOM ①.	
T1	455 kHz (US, Canadian, model) 468 kHz

FM IF ALIGNMENT 2 (with no modulation)	
Adjust for 0 V dc on VOM ②.	
10.7 MHz	T3





SECTION 4
TROUBLESHOOTING CHART OF TIMER

1. All LEDs are not illuminated.

Check the voltage on the terminal 28 of IC 1.

BRIGHT switch (S6)	Voltage
L position	27 V
H position	23 V

Yes → The path between the terminal 23 (IC 1) and the terminal 9 (each LED) is conducted. (This circuit has polarity.)
- Yes → Defective IC 1. → Replace.
- No → Check the connection.

No → Check the power supply section.

2. Some segments (LED) are not illuminated.

Check the voltage between the terminal 23 (IC 1) and each terminal of LEDs except common.

BRIGHT switch (S6)	Voltage
L position	2–3 V
H position	7–8 V

Yes → Check the current between the terminal 23 (IC 1) and each terminal of LEDs expect common.

BRIGHT switch (S6)	Current
L position	2.5– 5 mA
H position	5 –20 mA

- Yes → Defective LED. → Replace.
- No → Defective IC 1. → Replace.

No → Check the connection.

3. LEDs are illuminated, but the display does not change.

The voltage on the terminal 35 (IC 1) is more than 8 V.

Yes → Detective IC 1. → Replace.

No → Check the ac input circuit.

4. All LEDs are illuminated, but some segments are dark.

The resistance value of the pattern connected with the dark segment is equal to the value with the bright segment.

Yes → Check the current through the dark segment.

BRIGHT switch (S6)	Current
L position	5 mA
H position	10–20 mA

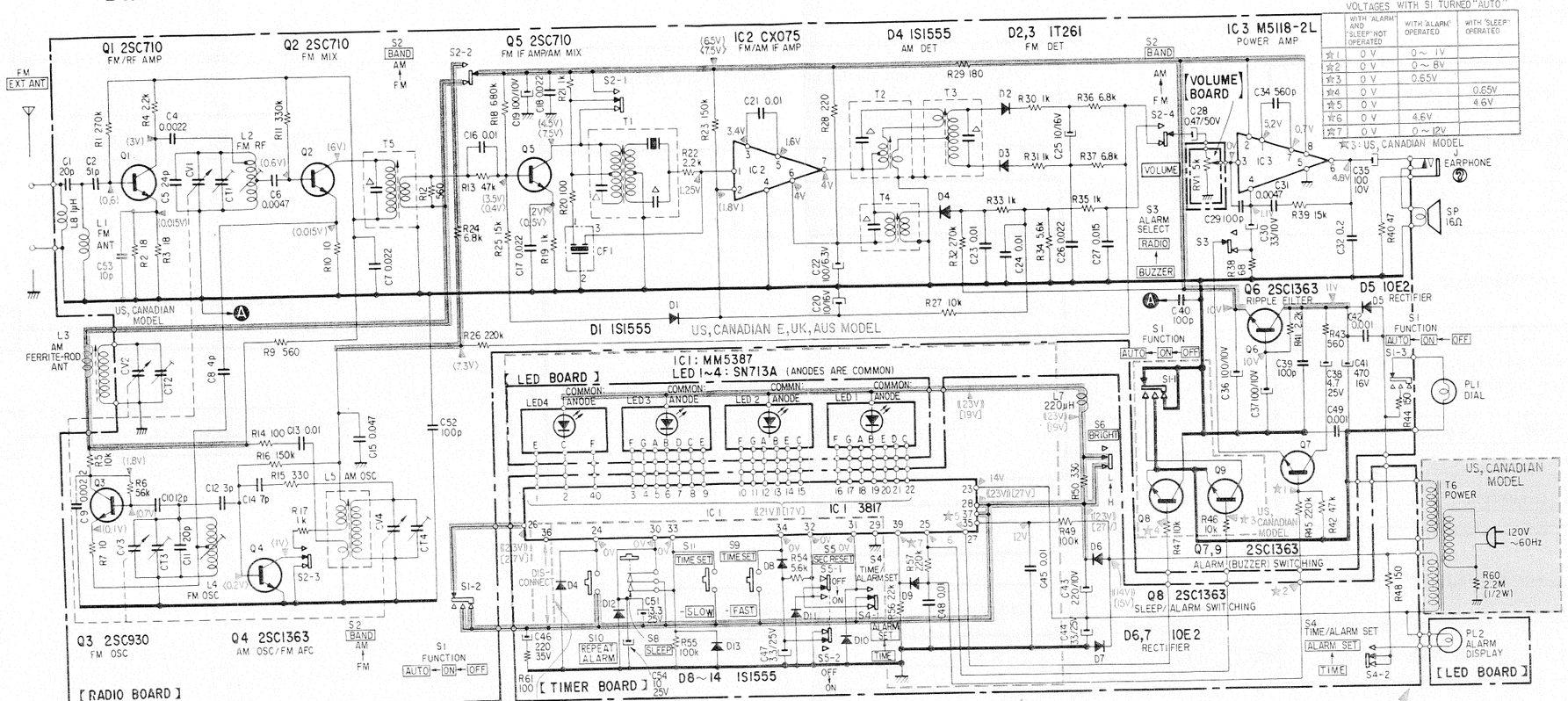
- Yes → Defective LED. → Replace.
- No → Defective IC 1. → Replace.

No → Check the connection.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

SECTION 5
DIAGRAMS

5-1. SCHEMATIC DIAGRAM



Note:

- All capacitors are in μF unless otherwise noted. 50 or less working volts are omitted except for electrolytic type. p = μμF
- All resistors are in Ω, ¼W, unless otherwise noted. k = 1,000 M = 1,000 k
- △ indicates internal components.
- ⏚ indicates chassis ground.
- ▭ indicates B+ bus.

- Voltages are DC with respect to ground unless otherwise noted. Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
  ( ) : FM
  〈 〉 : AM
  no mark: common
  {{ }} : S6 is in HIGH position
  [ ] : S6 is in LOW position
- Readings on the IC1's terminal are taken under the condition of displaying 12:00 on the LEDs.
- Voltage variations may be noted due to normal production tolerances.
- ▭ indicates designation of on the panel.

- Switch Mode:

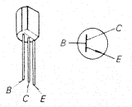
Ref. No.	Switch	Position	Ref. No.	Switch	Position
S1-1–3	FUNCTION	OFF	S8	SLEEP	OFF
S2-1–4	BAND	FM	S9	TIME SET-FAST	OFF
S3	ALARM SELECT	BUZZER	S10	REPEAT ALARM	OFF
S4-1, 2	TIME/ALARM SET	TIME	S11	TIME SET-SLOW	OFF
S5-1, 2	SEC RESET	OFF	S12	VOLTAGE SELECTOR (E, AEP MODEL)	240V
S6	BRIGHT	H			
S7	POWER FREQ SELECT (E MODEL)	60Hz			

Note:
- ■ indicates parts on the conductor side.
- ●— indicates lead wire connection on the conductor side.
- ○— indicates lead wire connection through the component side.
- → : signal path
- [ ] : indicates side identified with part number or with marking.
- : B+ pattern.

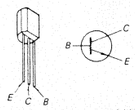
5-2. MOUNTING DIAGRAM

— Conductor Side —

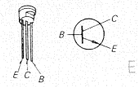
Q1, 2, 5: 2SC710



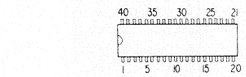
Q4, 6~9, 11: 2SC1363



Q3: 2SC930



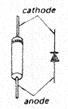
IC1: MM5387N



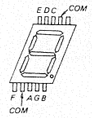
IC3: M51182L

IC2: CX075

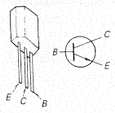
D1, 4, 8~14: 1S1555
D2, 3: 1T261
D5~7: 10E2

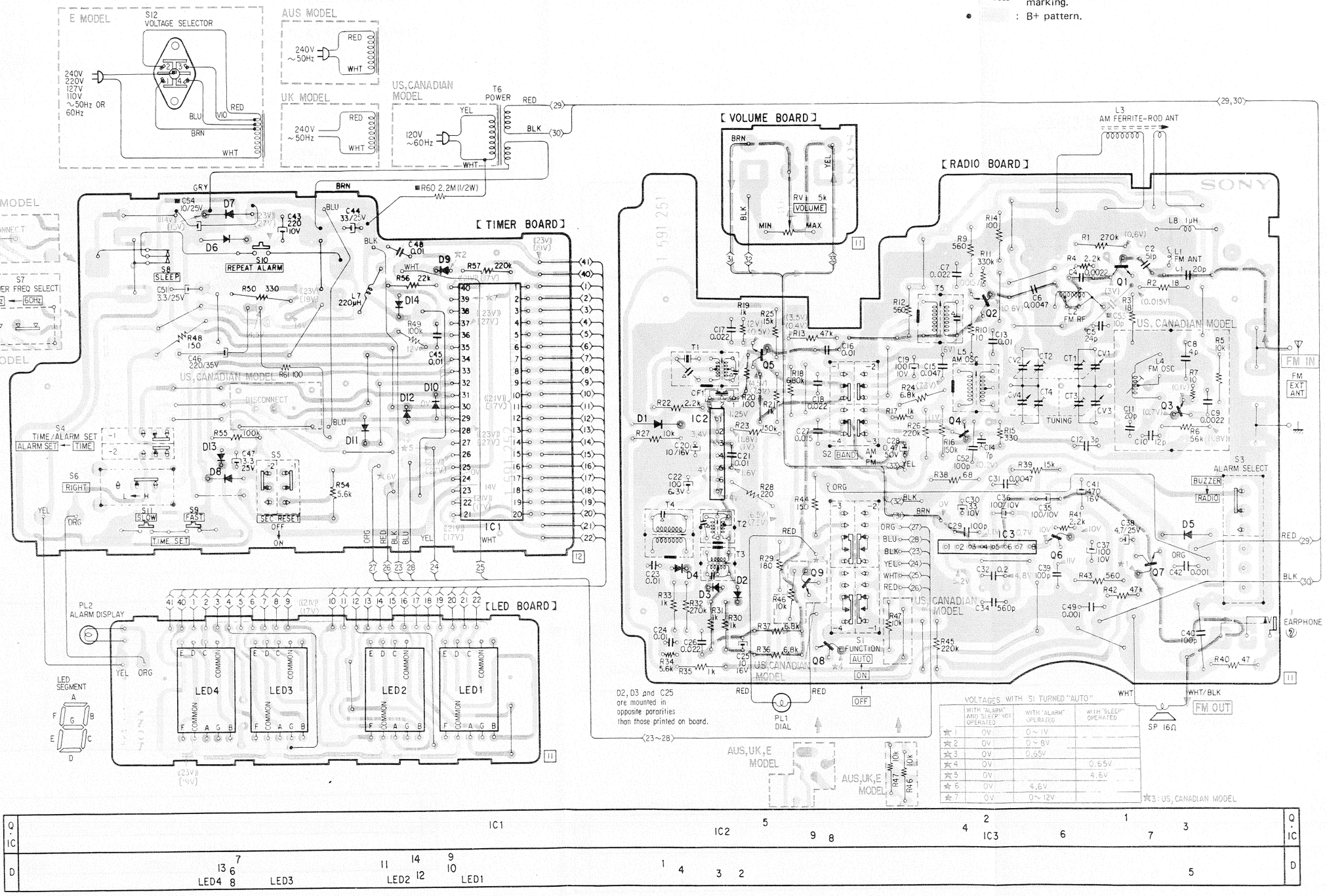


LED1~4: SN713A



For Replacement
Q4, 6~9, 11: 2SC634A

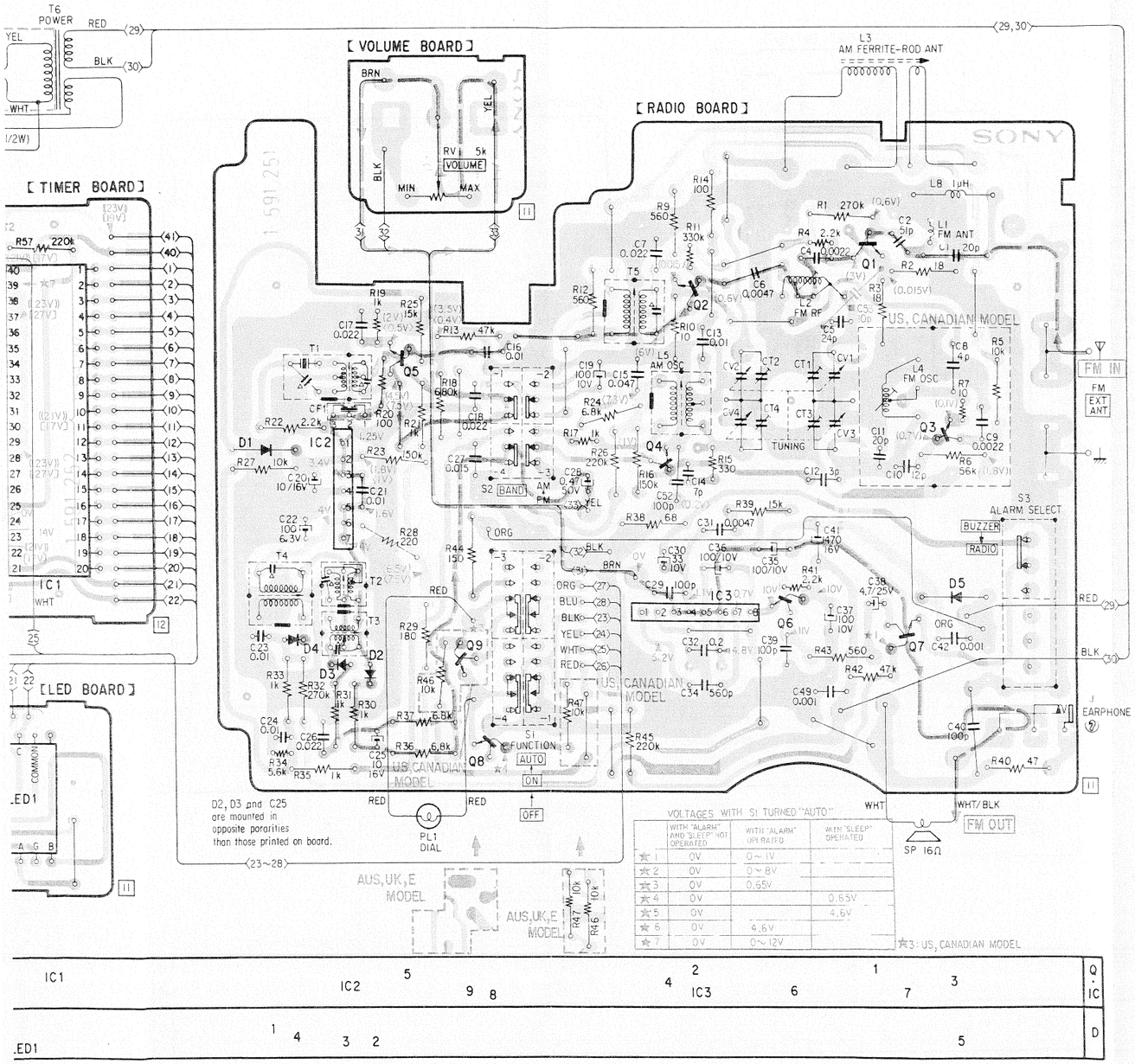




Q·IC	IC1								IC2					IC3							Q·IC
	1	2	3	4	5	6	7	8	1	2	3	4	5	1	2	3	4	5	6	7	
D	LED4	LED3							LED2					LED1							D

Note:

- ■ indicates parts on the conductor side.
- ●— indicates lead wire connection on the conductor side.
- ○— indicates lead wire connection through the component side.
- : signal path
- : indicates side identified with part number or with marking.
- : B+ pattern.

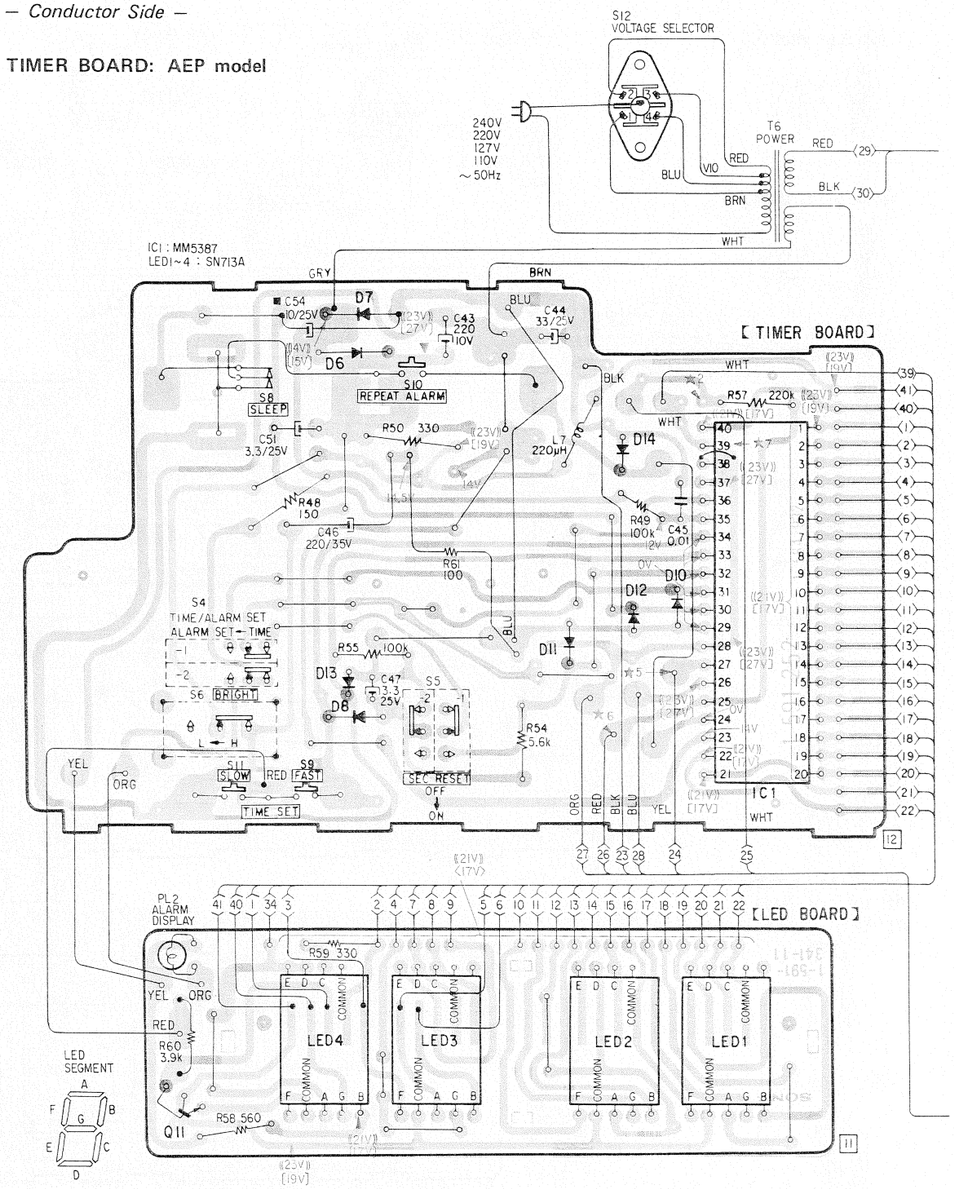


	IC1					IC2								IC3							Q. IC
LED1		1		4		3		2											5		D

5-3. MOUNTING DIAGRAM

— Conductor Side —

TIMER BOARD: AEP model



Q. IC																				IC1
						11														
D									7 6 13 LED4 8				LED3			11	14 12 LED2	10	LED1	

5-4. MOUNTING DIAGRAM — Radio Board —

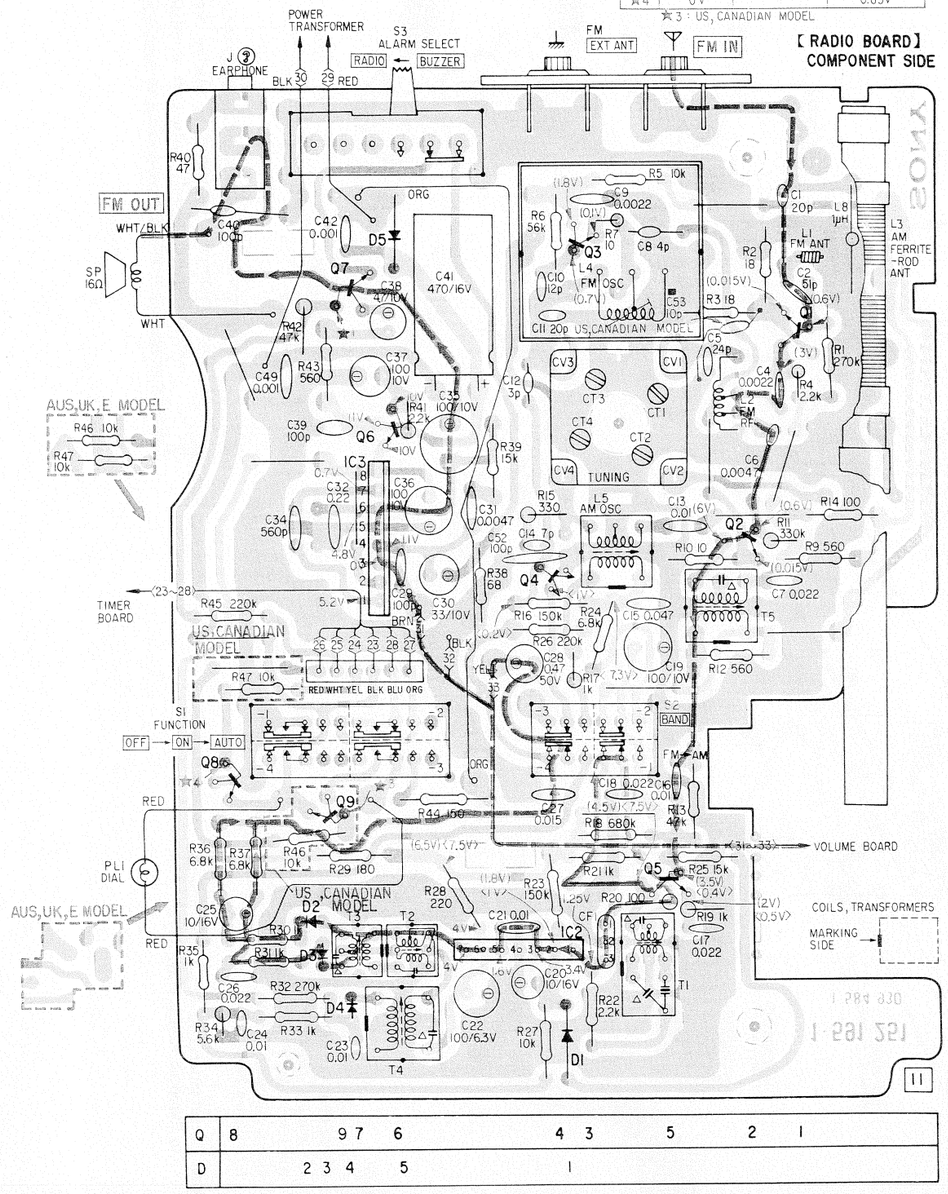
— Component Side —

RADIO BOARD

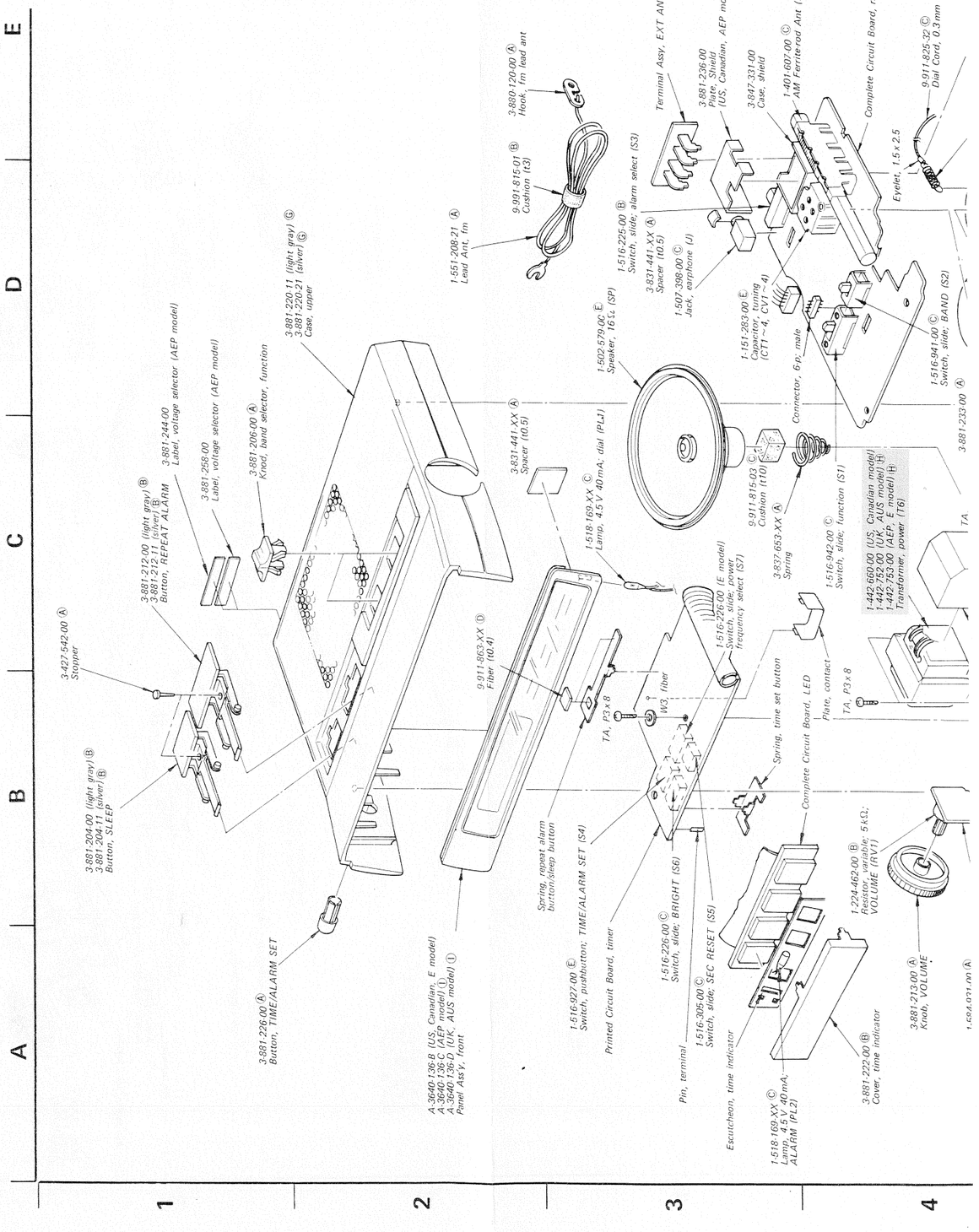
VOLTAGES WITH SI TURNED "AUTO"

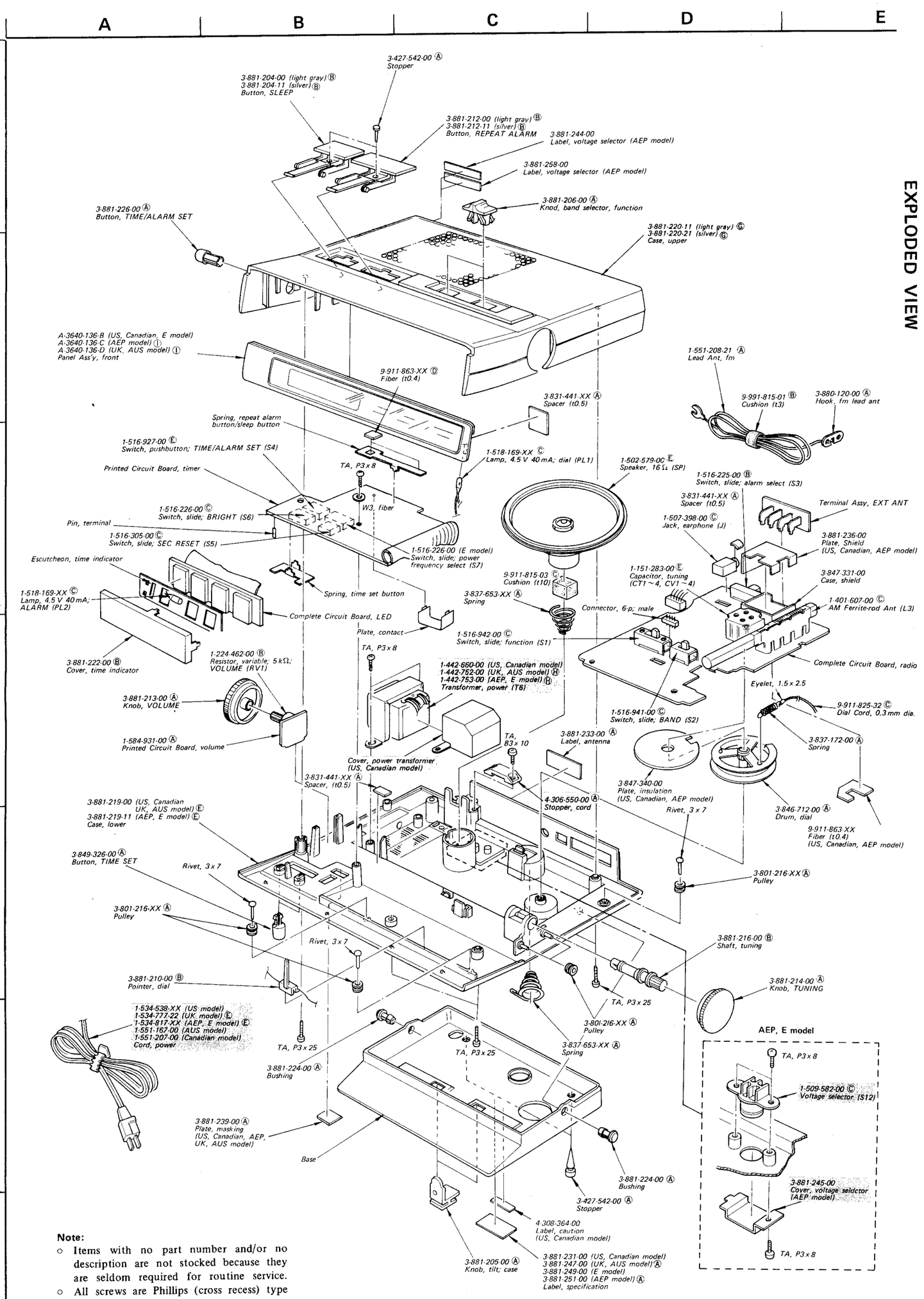
	WITH 'ALARM' AND 'SLEEP' NOT OPERATED	WITH 'ALARM' OPERATED	WITH 'SLEEP' OPERATED
☆1	0 V	0 ~ 1 V	
☆3	0 V	0.65 V	
☆4	0 V		0.65 V

☆3 : US, CANADIAN MODEL



SECTION 6
EXPLODED VIEW





Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading are critical for safcty. Replace only with part number specified.

SECTION 7
PARTS LIST

○ Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
PRINTED CIRCUIT BOARD			
	1-584-931-00	Ⓐ	Volume
SEMICONDUCTORS			
Transistors			
Q1,2		Ⓑ	2SC710
Q3		Ⓑ	2SC930
⇒ Q4		Ⓑ	2SC634A
Q5		Ⓑ	2SC710
⇒ Q6~8		Ⓑ	2SC634A
⇒ Q9			2SC634A (US, Canadian model)
⇒ Q11		Ⓑ	2SC634A (AEP model)
ICs			
⇒ IC1		Ⓜ	MM5387N
IC2		Ⓓ	CX075
IC3		Ⓔ	M5118-2L
Diodes			
D1		Ⓑ	1S1555
D2,3		Ⓑ	1T261
D4		Ⓑ	1S1555
D5~7		Ⓑ	10E2
D8		Ⓑ	1S1555
D9		Ⓑ	1S1555 (US, Canadian, UK, E, AUS model)
D10~14		Ⓑ	1S1555
LED1~4		Ⓗ	SN713A
COILS			
L3	1-401-607-00	Ⓒ	AM Ferrite-rod Antenna
L5	1-405-625-00	Ⓑ	AM Osc
L6	1-407-661-XX	Ⓑ	Microinductor, 470μH
L7	1-407-173-XX	Ⓐ	Microinductor, 220μH
L8	1-407-178-XX	Ⓐ	Microinductor, 1μH

⇒: Due to replacement parts, the descriptions are different from the diagrams.

Ref. No.	Part No.		Description
TRANSFORMERS			
T1	1-403-823-00	Ⓒ	Filter, ceramic (AEP, UK, AUS, E model)
	1-403-163-00		Filter, ceramic (US, Canadian model)
T2	1-403-959-00	Ⓑ	FM Discriminator
T3	1-403-953-00	Ⓑ	FM Discriminator
T4	1-404-043-00	Ⓑ	AM IFT
T5	1-403-899-00	Ⓑ	FM IFT
T6	1-442-660-00		Power (US, Canadian model)
	1-442-752-00	Ⓗ	Power (UK, AUS model)
	1-442-753-00	Ⓗ	Power (E, AEP model)
FILTERS			
CF1	1-527-184-XX	Ⓑ	Ceramic, 10.7 MHz
CAPACITORS			

All capacitors are in μF and of ceramic unless otherwise noted.
50 and/or less working voltages are not noted except for electrolytic type.
(p = μμF, elect = electrolytic)

C1	1-102-958-11	Ⓐ	20p	
C2	1-101-882-11	Ⓐ	51p	
C4	1-101-919-11	Ⓐ	0.0022	
C5	1-102-960-11	Ⓐ	24p	
C6	1-101-922-11	Ⓐ	0.0047	
C7	1-101-924-11	Ⓐ	0.022	
C8	1-102-937-11	Ⓐ	4p	
C9	1-102-100-11	Ⓐ	0.0022	
C10	1-102-949-11	Ⓐ	12p	
C11	1-101-980-11	Ⓐ	20p	
C12	1-102-936-11	Ⓐ	3p	
C13	1-101-923-11	Ⓐ	0.01	
C14	1-102-944-11	Ⓐ	7p	
C15	1-101-925-11	Ⓐ	0.047	
C16	1-101-923-11	Ⓐ	0.01	
C17,18	1-101-924-11	Ⓐ	0.022	
C19	1-121-414-11	Ⓐ	100	10V elect

Note: The components identified by shading are critical fo safety. Replace only with part number specifiec

Ref. No.	Part No.			Description
C20	1-121-651-11	Ⓐ	10 16V elect	
C21	1-101-923-11	Ⓐ	0.01	
C22	1-121-413-11	Ⓐ	100 6.3V elect	
C23,24	1-161-032-11	Ⓐ	0.01 (boundary layer)	
C25	1-121-651-11	Ⓐ	10 16V elect	
C26	1-161-017-11	Ⓐ	0.022 (boundary layer)	
C27	1-161-033-11	Ⓐ	0.015 (boundary layer)	
C28	1-121-726-11	Ⓐ	0.47 50V elect	
C29	1-102-973-11	Ⓐ	100p	
C30	1-121-402-11	Ⓐ	33 10V elect	
C31	1-101-922-11	Ⓐ	0.0047	
C32	1-101-798-11	Ⓐ	0.22 (boundary layer)	
C34	1-102-115-11	Ⓐ	560p	
C35~37	1-121-414-11	Ⓐ	100 10V elect	
C38	1-121-395-11	Ⓐ	4.7 25V elect	
C39,40	1-102-973-11	Ⓐ	100p	
C41	1-121-426-11	Ⓑ	470 16V elect	
C42	1-101-001-11	Ⓐ	0.001	
C43	1-121-420-11	Ⓑ	220 10V elect	
C44	1-121-404-11	Ⓐ	33 25V elect	
C45	1-101-923-11	Ⓐ	0.01	
C46	1-121-261-11	Ⓑ	220 35V elect	
C47	1-121-392-11	Ⓐ	3.3 25V elect	
C48	1-101-923-11	Ⓐ	0.01 (US, Canadian, UK, E, AUS model)	
C49	1-101-001-11	Ⓐ	0.001	
C51	1-121-392-11	Ⓐ	3.3 25V elect	
C52	1-121-404-11		33 25V elect	
C53	1-102-947-11		10p (US, Canadian model)	
C54	1-121-398-11	Ⓐ	10 25V elect	
CT1~4, CV1~4	1-151-283-00	Ⓔ	Tuning	

RESISTORS

Regular-type ¼W carbon resistors are omitted. Check the schematic diagram for the resistance values. (k = 1000, M = 1000 k)

RV1	1-224-462-00	Ⓑ	5 kΩ, variable; VOLUME
R60	1-246-487-35		2.2 MΩ ½W (US, Canadian model)

Ref. No.	Part No.		Description
			SWITCHES
S1	1-516-942-00	Ⓒ	Slide, function
S2	1-516-941-00	Ⓒ	Slide, BAND
S3	1-516-225-00	Ⓑ	Slide, alarm select
S4	1-516-927-00	Ⓔ	Pushbutton, TIME/ALARM SET
S5	1-516-305-00	Ⓒ	Slide, SEC RESET
S6,7	1-516-226-00	Ⓒ	Slide, BRIGHT; power frequency select (E model)
S12	1-509-582-00	Ⓒ	Voltage Selector (E, AEP model)
			MISCELLANEOUS
J	1-507-398-00	Ⓒ	Jack, earphone
PL1,2	1-518-169-XX	Ⓒ	Lamp, 4.5V 40 mA; dial, ALARM
SP	1-502-579-00	Ⓔ	Speaker, 16Ω
	1-534-538-XX		Cord, power (US model)
	1-534-777-22	Ⓔ	Cord, power (UK model)
	1-534-817-XX	Ⓔ	Cord, power (AEP, E model)
	1-551-167-00	Ⓔ	Cord, power (AUS model)
	1-551-207-00		Cord, power (Canadian model)
	1-551-208-21	Ⓐ	Lead Antenna, fm

ACCESSORIES & PACKING MATERIALS

Part No.		Description
X-3881-203-0	Ⓑ	Cushion Ass'y, upper
3-701-623-00	Ⓐ	Bag, plastic
3-880-122-00	Ⓑ	Sheet, protection
3-881-228-11	Ⓒ	Carton
3-881-230-00	Ⓑ	Cushion, side
3-993-143-31		Manual, instruction; French (Canadian model)
3-995-756-11	Ⓑ	Manual, instruction (AEP model)
3-995-756-21		Manual, instruction (US, Canadian model)
3-995-756-41	Ⓑ	Manual, instruction (E, UK, AUS model)

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Sony Corporation

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FM/AM DIGITAL CLOCK RADIO

ICF-C800W

US Model
Canadian Model
AEP Model
UK Model
E Model
AUS Model

SUPPLEMENT

No. 1
January, 1978

Subject: Digital Clock Circuit Description

File this supplement with the service manual.

SONY®
SERVICE MANUAL

1. TIME DISPLAY COUNTER (Refer to the block diagram.)

The timer used in ICF-C800W displays the time by counting the frequency of the power supply.

The frequency signal from the power transformer (T6) is supplied to terminal 35 of the IC while only noise component is eliminated with R49 and C45. The shaping circuit converts the frequency signal into pulse form, these pulses are counted.

The counter produces a 1 PPS (1 Hz) signal by means of a frequency divider, which is initially set to either 1/60 or 1/50.

The 1/60 division produces 1 pulse per hour, while yet another division of 1/12 produces a pulse once every 12 hours. These pulses are sent via display changer circuit to a code converter where they are converted for use in a LED display. Selection of the power supply frequency is achieved by changing the division factor with switch S7. (S7: E model only)

2. TIME ADJUSTMENT

When the TIME/ALARM SET switch (S4-1) is set to TIME, and one of the TIME SET switches (S9 and S11) is pressed, counter division factor (for seconds and minutes) is changed, thus advancing the time shown in the display. The advance rate is 2 min./sec. for the SLOW switch (S11), and 1 hour/sec. for the FAST switch (S9). When B+ is applied simultaneously to both terminals 32 and 34 of the IC, the seconds counter is set to 0, and the time display becomes stationary.

D8 is used so that 0 resetting can be operated only with the SEC RESET (S5). If the FAST switch (S9) was turned on without D8, 0 resetting would be operated.

With SEC RESET switch (S5-1) turned on, when terminal 34 is activated before terminal 32 is activated, or with S5-1 turned off, when terminal 34 is activated till late after terminal 32 is activated, the time display advances.

This is because the time constant of R54 and C47 is designed so that terminal 34 is activated after terminal 32 is activated, while SEC RESET switch (S5-2) ensures that activation of terminal 34 is released before activation of 32 is released.

3. ALARM COUNTER

When the TIME/ALARM SET switch (S4-1) is turned to ALARM SET, the numerical value of the alarm counter is shown by the LEDs after passing through the display changer circuit. The alarm counter does not count when both TIME SET switches (S9) and (S11) are not pressed. Consequently, the set time remains stationary.

The speeds of TIME SET is the same as the advance rates of the time display counter, i.e., 2 min./sec. for SLOW and 1 hour/sec. for FAST.

4. SLEEP COUNTER

The sleep counter is a 59 preset down-count type. It is supplied with a 1 pulse/min. signal from the time counter. Therefore, the maximum continuous time for which it can operate is 59 minutes.

If the SLEEP switch (S8) is pressed lightly, the upper and middle contacts of S8 touch, thus presetting the sleep counter to 59. The numerical value of the sleep counter is displayed after passing through the display changer circuit. At the same time, the counter output also activates the alarm/sleep switch, and turning Q8 on, the radio operates. If the SLEEP switch is pressed further, the bottom contact of S8 is connected in parallel with the TIME SET-SLOW switch (S11), so the time set switch increases the count speed of the sleep counter, reducing the preset numerals at a rate of 2 per second.

When the SLEEP switch (S8) is released, the rate returns to 1 per minute. When it reaches 0, Q8 returns to the OFF position.

5. ALARM

When the FUNCTION switch (S1) is set to AUTO, the radio is turned on automatically at the time set by ALARM. And when the ALARM SELECT switch (S3) is set to the BUZZER position, an intermittent (1 Hz) buzzer sound is produced from the speaker. This alarm can continue for up to 59 minutes.

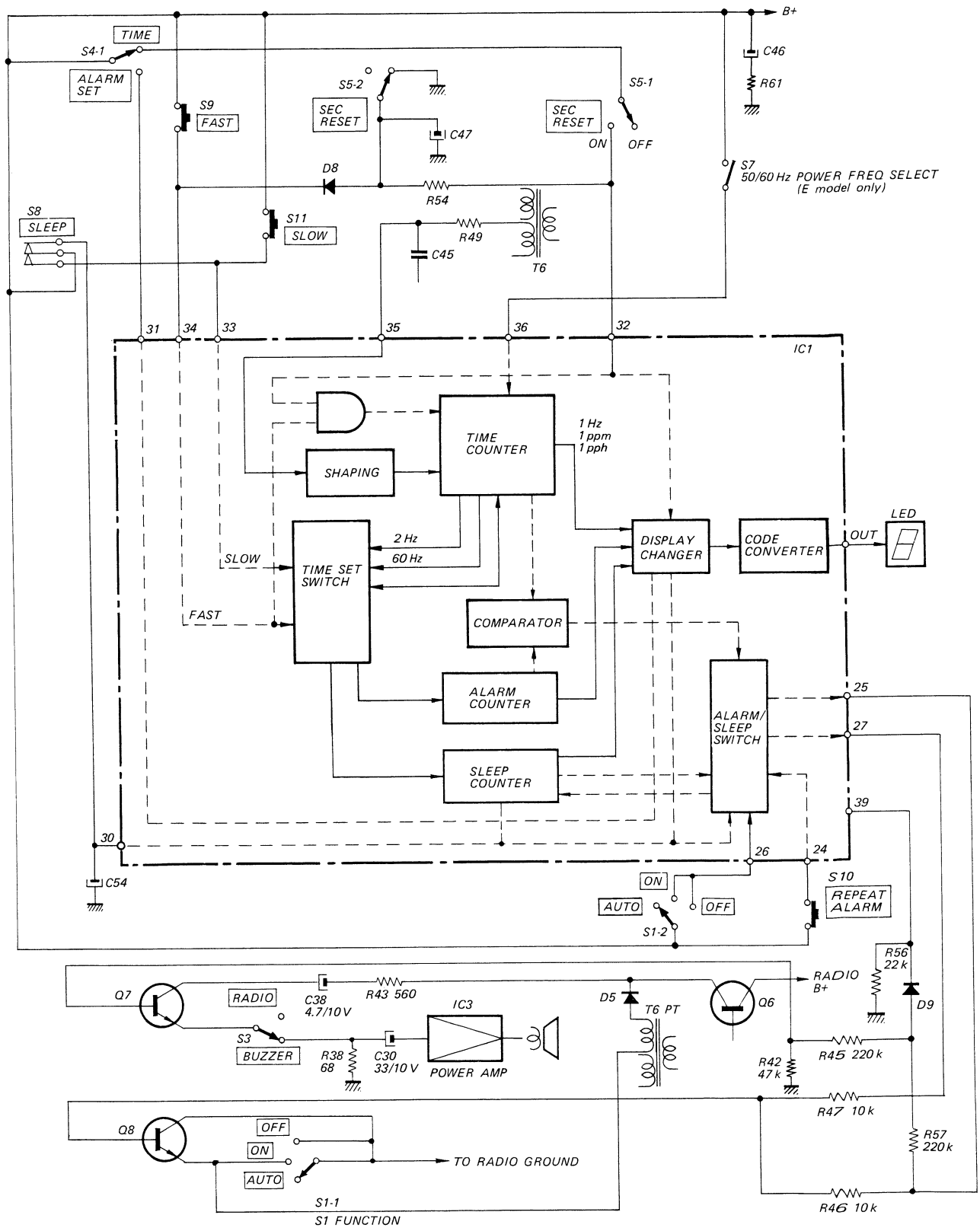
This operation is explained in a little more detail. First, the time in the time counter, and the time in the alarm counter, are compared by a comparator. Then both times agree, the comparator activates the alarm/sleep switch circuit. This circuit presets the sleep counter to 59, and keeps activating until the sleep counter reaches 0. (During this time, the sleep counter does not activate the alarm/sleep switch circuit).

Since the alarm/sleep switch circuit turns Q9 on, the radio operates. But part of the alarm circuit output is also applied to the base of Q7 via R57 and 45. When terminal 39 of IC1 is at 0V, this circuit is grounded via D9 and R56, therefore Q7 is not turned on. However, this terminal produces a positive 1 Hz square wave.

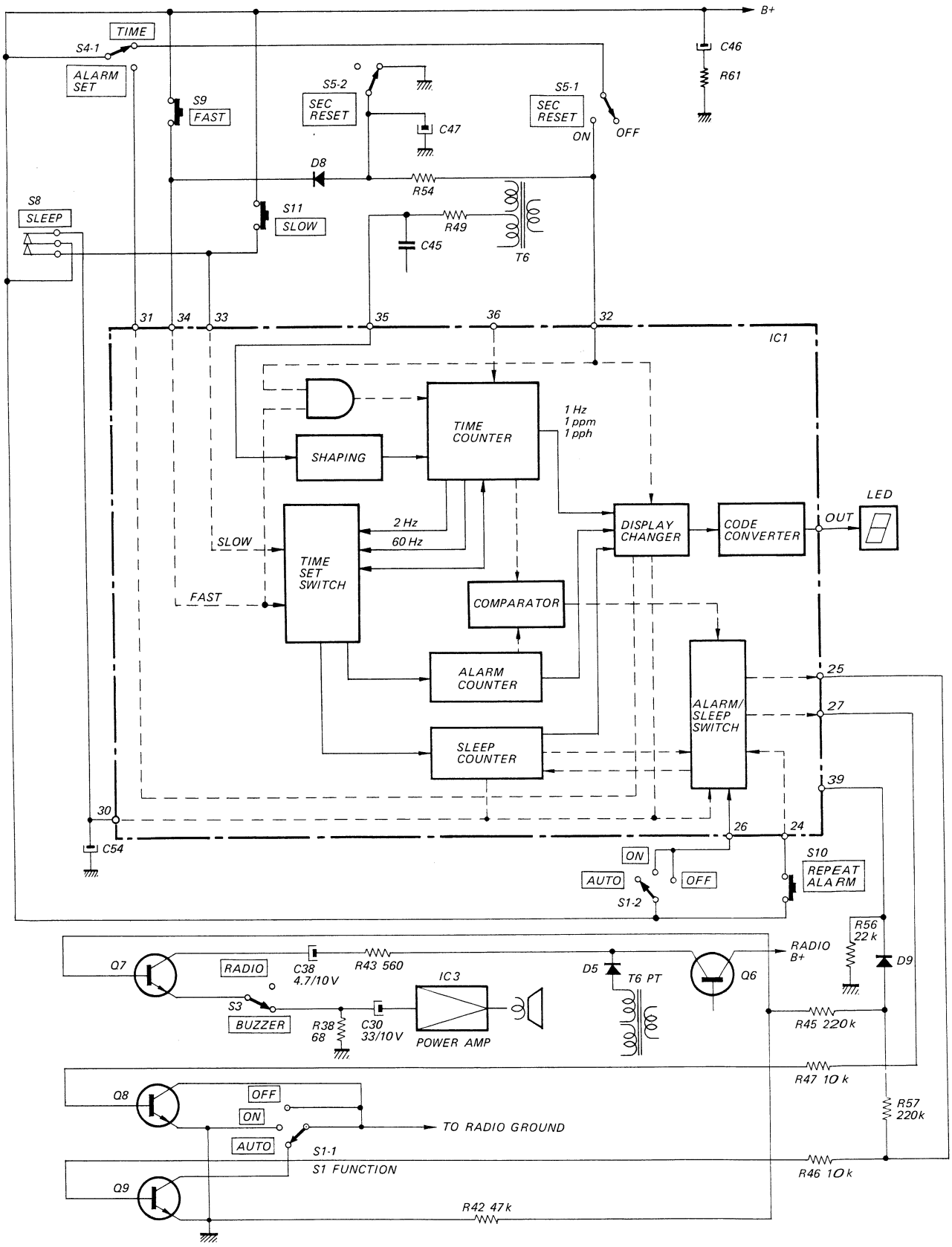
Consequently, the alarm circuit output turns Q7 on when the potential on terminal 39 is positive. With Q7 turning on, the ripple component of the radio B+ power supply is sent to IC3 via R43, C38, Q7 and C30, thus producing the 1 Hz buzzer sound from the speaker.

When the REPEAT ALARM switch (S10) is pressed during the alarm operation, the alarm circuit turns Q9 off, and then on again 9 minutes later. On the other hand, when once the FUNCTION switch is turned on or off during the alarm operation, the alarm circuit is reset. Therefore, when the FUNCTION switch is turned back to AUTO, the alarm does not operate until the same time in the next day.

6-1. BLOCK DIAGRAM (AEP, UK, E, AUS Model)



6-2. BLOCK DIAGRAM (US, Canadian Model)



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